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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/526,330

04/04/2005

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EXAMINER

FLORES RUIZ, DELMA R

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

08/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/526,330

Applicant(s)

HOLLEMANN ET AL.

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-15,17 and 18 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/28/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

### ***Information Disclosure Statement***

The examiner has been considered the information disclosure statement (IDS) submitted on February 28, 2005.

### ***Drawings***

The examiner has considered the drawings submitted on February 28, 2005.

### ***Oath/Declaration***

The examiner has considered the Oath/Declaration submitted on February 28, 2005.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1 – 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

- Claim 1, the phrase: "a small-signal amplification of more than 10 is provided for each amplifier stage in an amplifying laser crystal the total small-signal amplification caused by all amplifying laser crystals being greater than 100" is indefinite, because it is not clear from the specification what "a small-signal amplification" is and "more than 10 or greater than 100" is missing the units.
- Claim 18, the phrase: "whereby the selected pulses in each amplifier stage are amplified with small-signal amplification of more than 10, but at least however with total small-signal amplification of more than 100 is indefinite, because it is not clear from the specification what "a small-signal amplification" is and "more than 10 or greater than 100" is missing the units.
- The term "small" in claims 1 and 18 is a relative term, which renders the claim indefinite. The term "small" is not defined by the claim, the

specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. If Applicant intends any particular amplification of the signal, it must be clearly recited.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

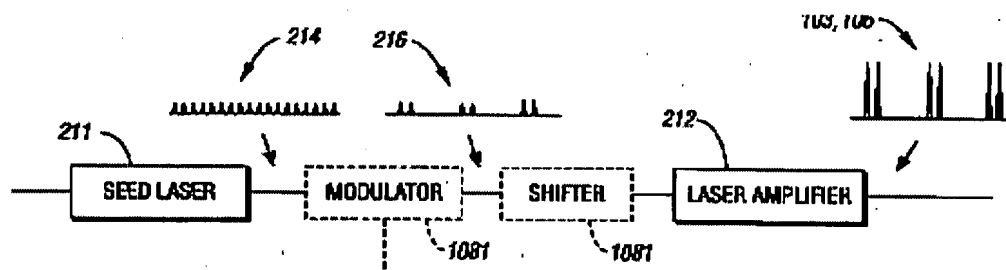
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4 – 15 and 17 – 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Gu et al (2004/0134894).

***Regarding claim 1***, Gu discloses an arrangement for generating ultrashort laser pulses comprising: a solid-state laser oscillator (see Fig. Character 211, the reference call "seed laser"); a multistage laser amplifier (see Fig. 2b, Character 212 and see Fig. 8b, Character 8111 and 8112, and Paragraphs [0132]); and at least one circuit element

(see Fig. 2b, Character 1081, the reference call modulator", Paragraphs [0036-0037]) for selecting pulses from the pulse sequence with a reduced pulse repetition rate compared to the pulse sequence (Paragraph [0022]), said laser amplifier having no resonator (see Figure 2b and 8a-c) and being free of active circuit elements with respect to the pulse to be amplified and having at least one double pass of the pulse to be amplified (Figures 2b, 7 – 8, and Paragraph [0066]), wherein a small-signal amplification of more than 10 is provided for each amplifier stage in an amplifying laser crystal the total small-signal amplification caused by all amplifying laser crystals being greater than 100 (Paragraph [0135]).

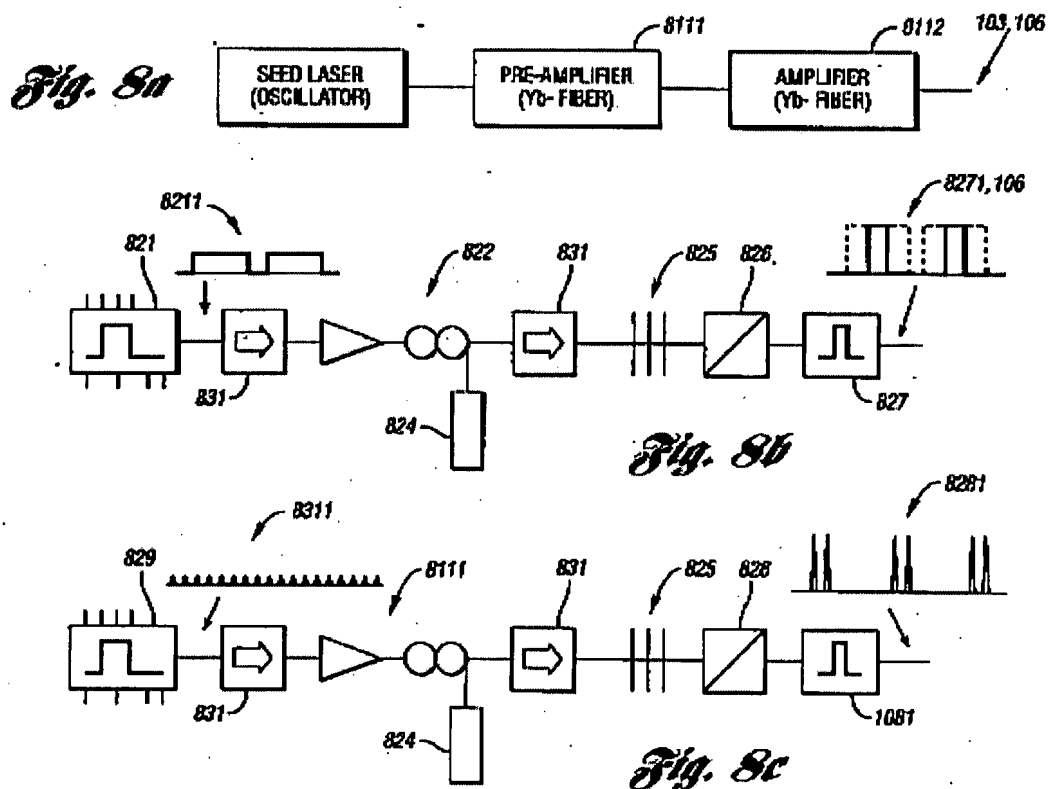


**Fig. 2b**

**Regarding claim 4,** Gu discloses a circuit element comprises an acousto-optical modulator (see Fig. 2, Character 1081 and (Paragraph [0036]) and is arranged between said solid-state laser oscillator (see Fig. 2b, Character 211, the reference call "seed laser") and said amplifier (see Fig. 2b, Character 212).

**Regarding claim 5,** Gu discloses an acousto-optical modulator (see Fig. 2, Character 1081 and (Paragraph [0036]) is triggered by a photodiode that determines the

selection of the pulses in conjunction with an electronic counter (Figure 3, Paragraph [0074]).



**Regarding claim 6**, Gu discloses two acousto-optical modulators (see Fig. 2b, Character 1081, the reference call "modulator and shifter") arranged as circuit elements one after the other between said solid-state laser oscillator (see Fig. 2b, Character 211, the reference call "seed laser" ) and said amplifier (see Fig. 2b, Character 212).

**Regarding claim 7**, Gu discloses the pulse repetition rate is variable by adjusting the pulses to be selected in a time unit ( Figure 2b, Paragraphs [0070-0072]) .

**Regarding claim 8,** Gu discloses a circuit element comprises an electro-optical modulator (see Fig. 2, Character 1081 and (Paragraph [0036-0037]) and is arranged between said solid-state laser oscillator (see Fig. 2b, Character 211, the reference call "Seed laser") and said amplifier (see Fig. 2b, Character 212).

**Regarding claims 9 and 10,** Gu discloses a circuit element comprises an optical isolator or Faraday isolator (Paragraphs [0133-0134]) between said solid-state laser oscillator (see Fig. 2b, Character 211, the reference call "seed laser" ) and said amplifier (see Fig. 2b, Character 212).

**Regarding claim 11,** Gu discloses a solid-state laser oscillator is diode-pumped and mode-coupled (Paragraph [0027]).

**Regarding claims 12 and 13,** Gu discloses a solid-state laser oscillator comprises a Q-switched or passive Q-switched highly-repetitive pulsed oscillator (Paragraph [0024 and 0110]).

**Regarding claim 14,** Gu discloses a said solid-state laser oscillator comprises a pulsed diode laser (Paragraph [0024]).

**Regarding claim 15,** Gu discloses a solid-state laser oscillator comprises a



pulsed laser (Paragraph [0022]).

**Regarding claim 17**, Gu discloses comprising at least one non-linear optical crystal for wavelength transformation arranged downstream of said laser amplifier (Paragraph [0115]).

**Regarding claim 18**, Gu discloses a method for generating ultrashort laser pulses (see Fig. Character 211, the reference call "seed laser") by selecting pulses with reduced pulse repetition rates from a primary pulse sequence (Paragraph [0022]), and by amplifying the selected pulses with a multistage laser amplifier (see Fig. 2b, Character 212 and see Fig. 8b, Character 8111 and 8112, and Paragraphs [0132]) that has no resonator with respect to the pulse to be amplified and from which the amplified pulses are decoupled free of active switching procedures, whereby the amplification is connected (see Fig. 2b, Character 1081, the reference call modulator", Paragraphs [0036-0037]) to no more than one double pass by amplifying media provided in the amplifier stages and whereby the selected pulses in each amplifier stage are amplified with small-signal amplification of more than 10, but at least however with total small-signal amplification of more than 100 (Paragraph [0135]).

### ***Allowable Subject Matter***

Claims 2, 3 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

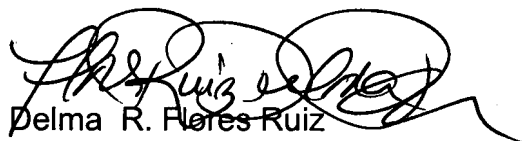
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Delma R. Flores Ruiz

Examiner

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DRFR/MH



Min Sun Harvey

Supervisor Patent Examiner

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July 20, 2007